# The City and County of San Francisco FOG\* Biofuel Program

Presented to the Pacific Southwest Organic Residuals Symposium October 2, 2008



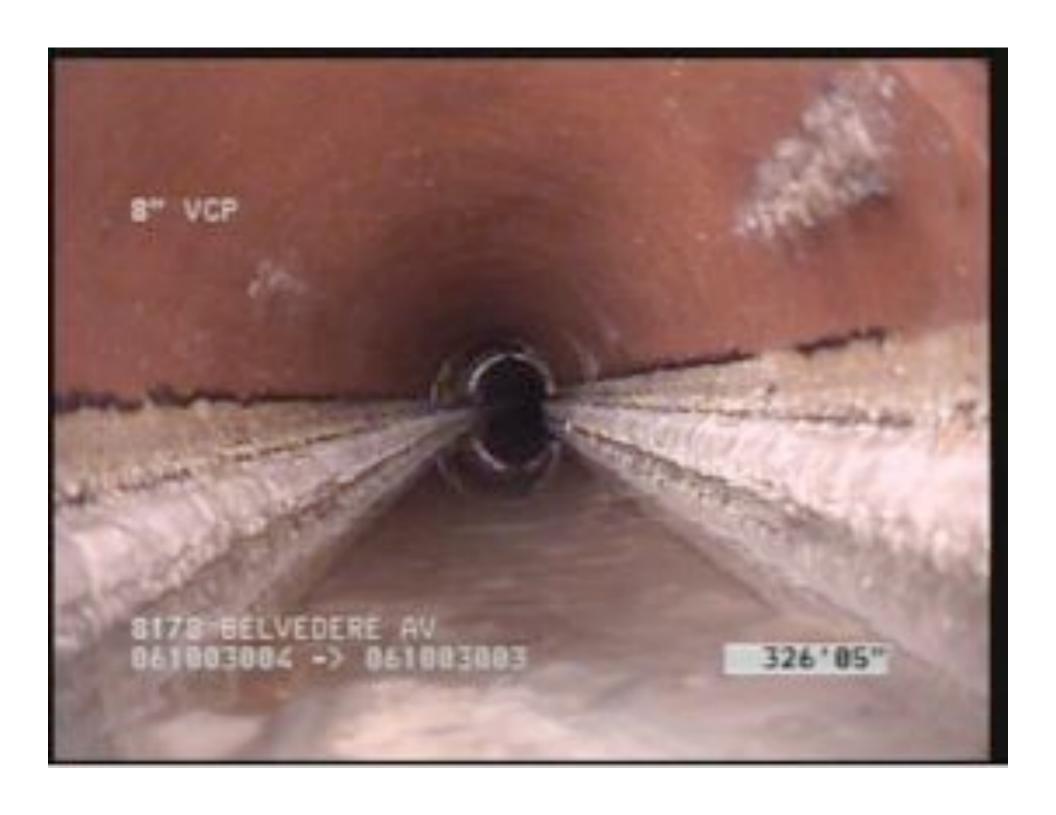
\*Fats, Oil and Grease

Presented by:
Benjamin P. Jordan, P.E.
Biofuel Recycling

## Fats, Oils and Grease

- Every kitchen creates oil residuals from:
  - frying food
  - washing dishes
  - scraping the griddle
  - stove fume hoods

These residues in the wastewater stream impacts the sewer system in quite a unique way....







## The problem is significant

- Shallow runs are impacted greatly
- Commercial districts can be problematic
- Residential sewers are also a problem
- In San Francisco, 44% of the sewer crew work orders are related to FOG blockages
- Chipping, Picking, Scrapping, Steam
   Cleaning and Jack Hammering increases
   the wear and tear on a very old system.

### A bit of the economics:

- The SFPUC spends 14 million each year for unblocking the sewers. This is a crew, on call 24 hrs a day, 7 days a week to stop the wastewater flowing in the street
- 44% of 14 Million is 6.1 Million just to clear FOG blockages
- Now there are a few estimates that cleaning sewer pipe, especially 100+ year old terra cotta pipe, reduces the life of the pipe by 5%, 4%, 3%, 0.5%...few estimates exist

## The San Francisco collection system has approximately:

- 780 miles of sewer main (8" in diameter to the largest at 22') in the center of the street. For the 8" the price designed and installed is about 200 \$/LF increasing as the pipe gets bigger.
- 2,200 miles of 5" sewer laterals from the main to the property line. For these laterals the price designed and installed is about 115 \$/LF.

## The cost of the sewer system

Sewer Main

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780 miles = 4,118,400 feet
4,738,370 LF * 200 $/LF = 8.2 billion
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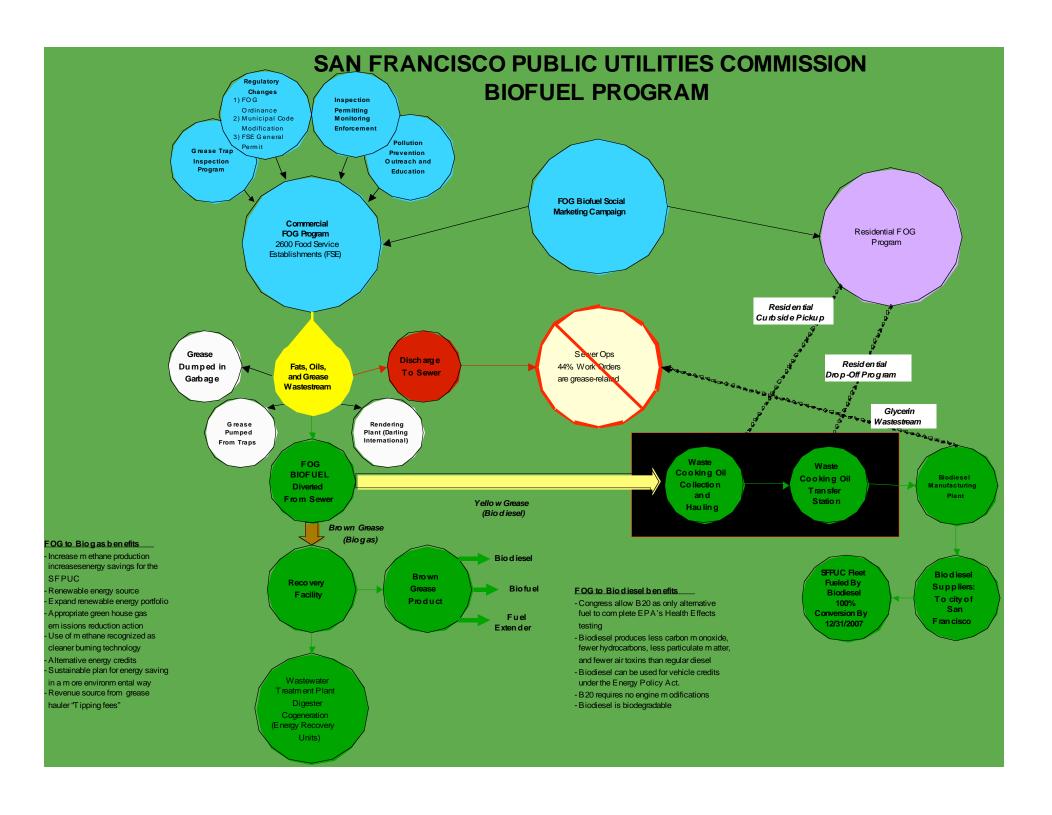
Sewer Lateral

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2,200 miles = 11,616,000 feet
11,616,000 LF * 115 $/LF = 1.3 billion
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That is 9.5 billion for a new sewer system And impacting it 5% = 475 million 4% = 380 million 3% = 285 million .5% = 47 million

## Other reasons to protect the linear asset, the sewer system

- Public perception of bioenergy and alternative infrastructure is valuable
- Rising energy costs are expected
- Non-compliance with AB 32 will cost much more than that not according to a recent Air Quality Control Board study



## The recycling service











### San Francisco Chronicle

#### Homeland Security spill probe

is sought Home receives not pleased safety board mold take a year

#### GETTING BACK INTO THE FLOW



#### California sues 20 companies over lead in toys



pooking oil for use as fuel













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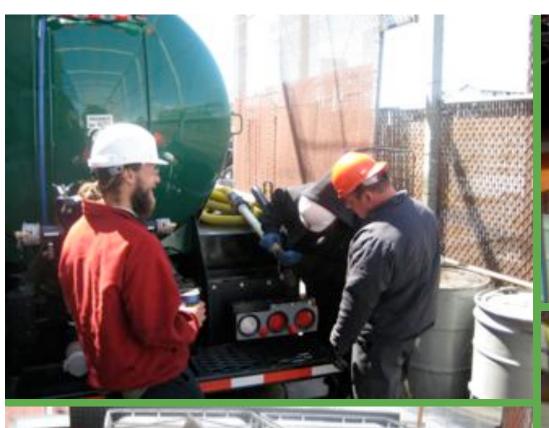






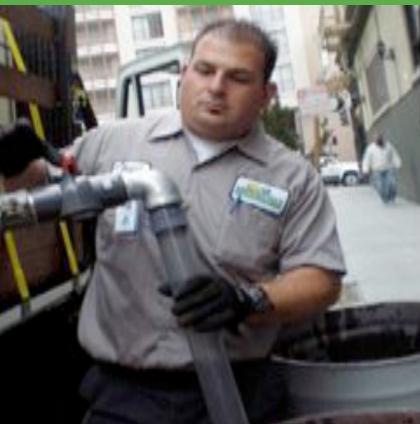
















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RECYCLE

FOR

BIOFUEL

YOUR

PARTICIPATE ON PLANTS.

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F FOR LINES, DOLS & GREAGES PACTS.

COMBATTING CLIMATE CHANGE

SIGN UP

#### Introducing SFGreasecycle

A new recycling program that turns a big mess into big benefits.

#### A big grease problem.

Home and restaurant used cooking oils are seriously dopping San Francisco's seriors and coating us all a lot of money-over \$3.5 million each year to ungog the gross, Winer poured down drains, cooking or aded has two thick levers tracks champions and server plans, constructing water flow the way photegoric affects blood flow in arteres.

#### Turned into big benefits.

But now the SPFUC is taking action. Works asteding made weptable of from City restaurants for FREE and racycling them. arts biodesic, an anyeomentarly framely attenuative to petroloure dieser. See Francisco Sento well soon run on broken made from used cooking also provided by aux book end accords.

#### \$7Gressecycle is the new collection program.

Sestainants can sign-up now for FREE collection services by picking hors. It entitillion of fine instructors to search saving.

#### Even a tittle grease causes problems.

Harry resistors prevents only a bit of used cooking oil. But the convolution affect from a rol of horses contributes to coughing session. Please don't pour AMY used all down the drain. Instead, colors it is a container and those it. Je the heads



With the New SFGreesecycle Program, we're converting your used cooking oil into biodiesal power the City's fleet.

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#### **DROP OFF YOUR USED COOKING OIL HERE.**

#### Please make sure:

your container has no leaks

your container is made of

coffee tir

NO TRASH NO GLASS

hthe lid is securely fastened

to keep water, soap residue, food

BEFORE YOU DUMP IT

#### HOW TO HANDLE USED FRYER OIL

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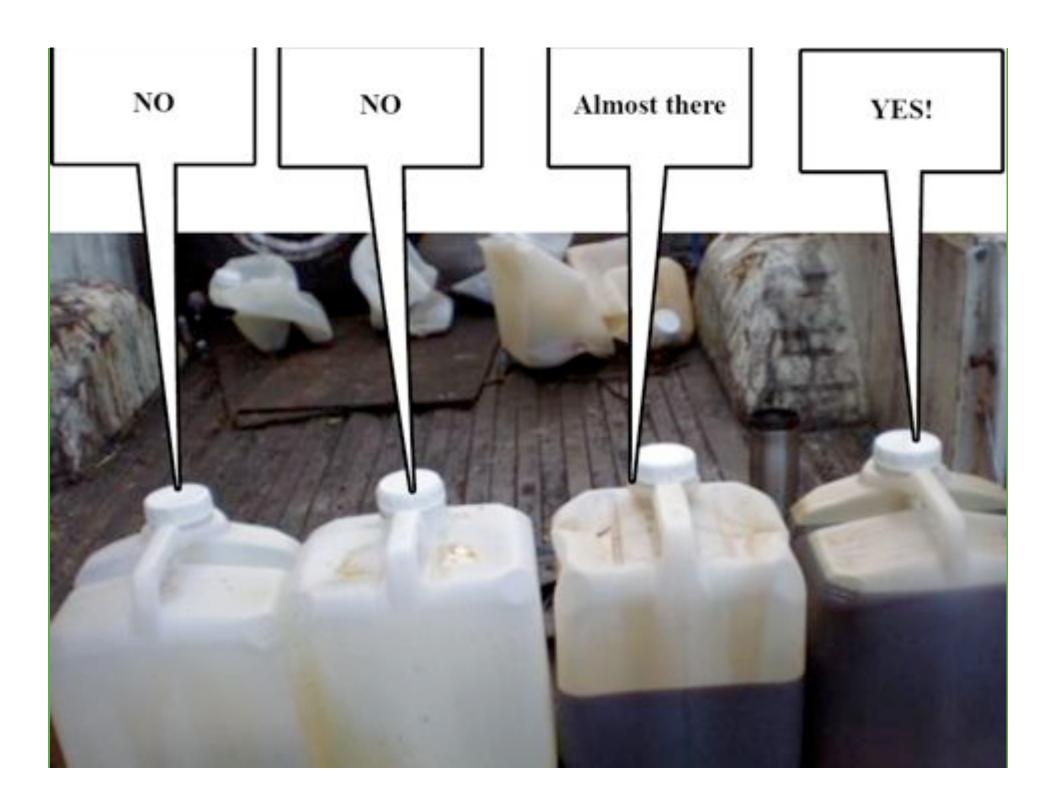
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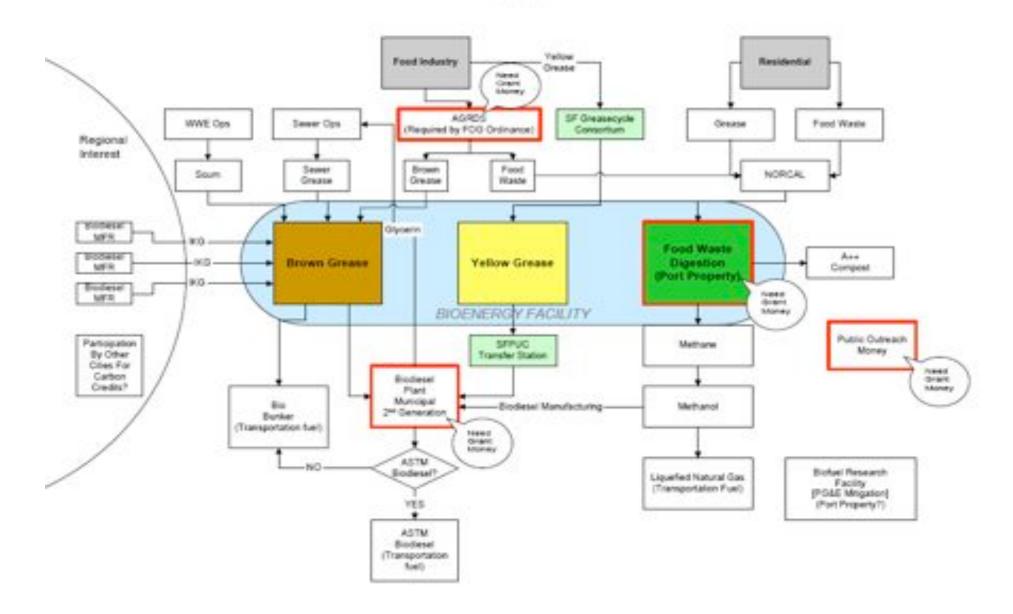






#### CITY OF SAN FRANCISCO, PUBLIC UTILITIES COMMISSION BIOENERGY FACILITY

May 28, 2006



# Organic Wastestream Management Systems Optimized for Energy Recovery

- -can be rationalized on economic projections that include the impact of climate change on our economy along with rising construction costs
- -fit well within existing utility infrastructure entities that have budgets and people; celebrating their skills while expanding their scope of services
- -is a shift from dealing in waste to generating energy; wastewater is really just fortified water